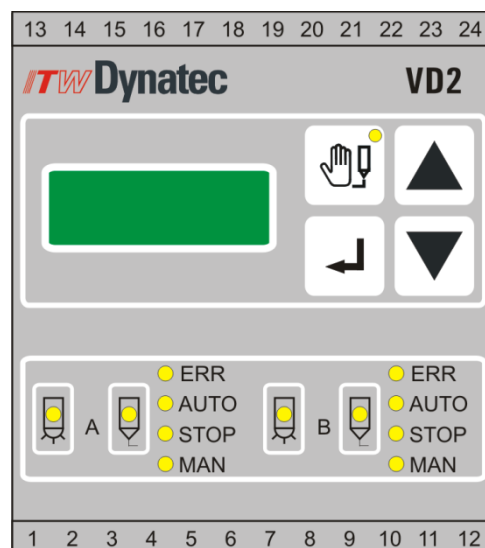




VD2

Modular High Speed 2 Channel Time Based Application Controller



IMPORTANT ! - READ ALL INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE! Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

ITW Dynatec Service Parts Direct Dial: 1-800-538-9540

ITW Dynatec Technical Service Direct Dial: 1-800-654-6711

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Safety Precautions

All operators and service personnel must read and understand this manual before operating or servicing equipment. All maintenance and service on this equipment must be performed by trained technicians.



Danger! High Voltage!

Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on. Disconnect, lockout and tag external electrical power before removing protective panels.

A secure connection to a reliable earth ground is essential for safe operation.

A disconnect switch with lockout capability must be provided in the line ahead of the unit. Wiring used to supply electrical power should be installed by a qualified electrician.

Safe Installation and Operation



Warning!

Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.



Warning! Hot Surface!

Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.

Safety glasses, gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.



Warning!

Never operate this unit in an explosive environment.

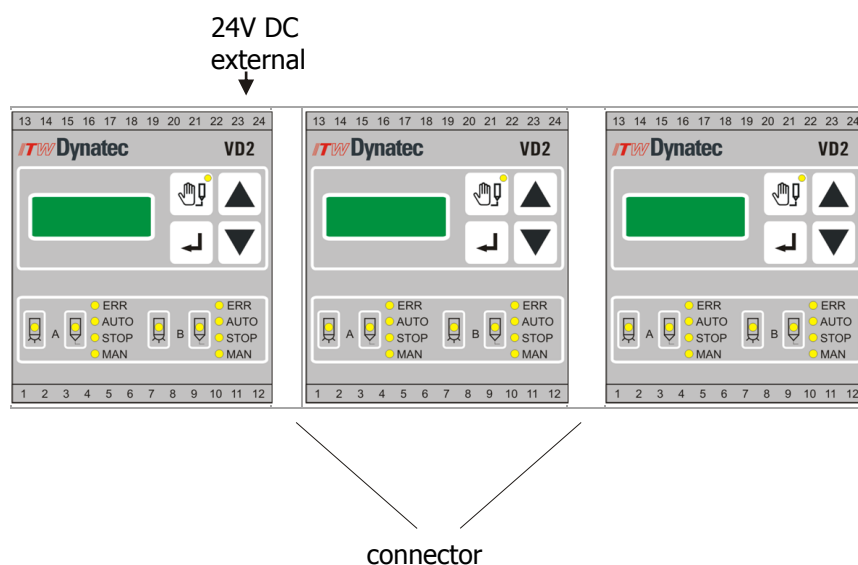
Product description

The driver unit Dynatec VD-2 can adapt external signal sources (for example a photocell or a PLC output), to a signal for a cold glue valve. It is possible to drive a valve of the type "Dynatec Dynacold" directly without losing the advantages like a clean application and a fast reaction time of the valve. No additional pattern controller is needed.

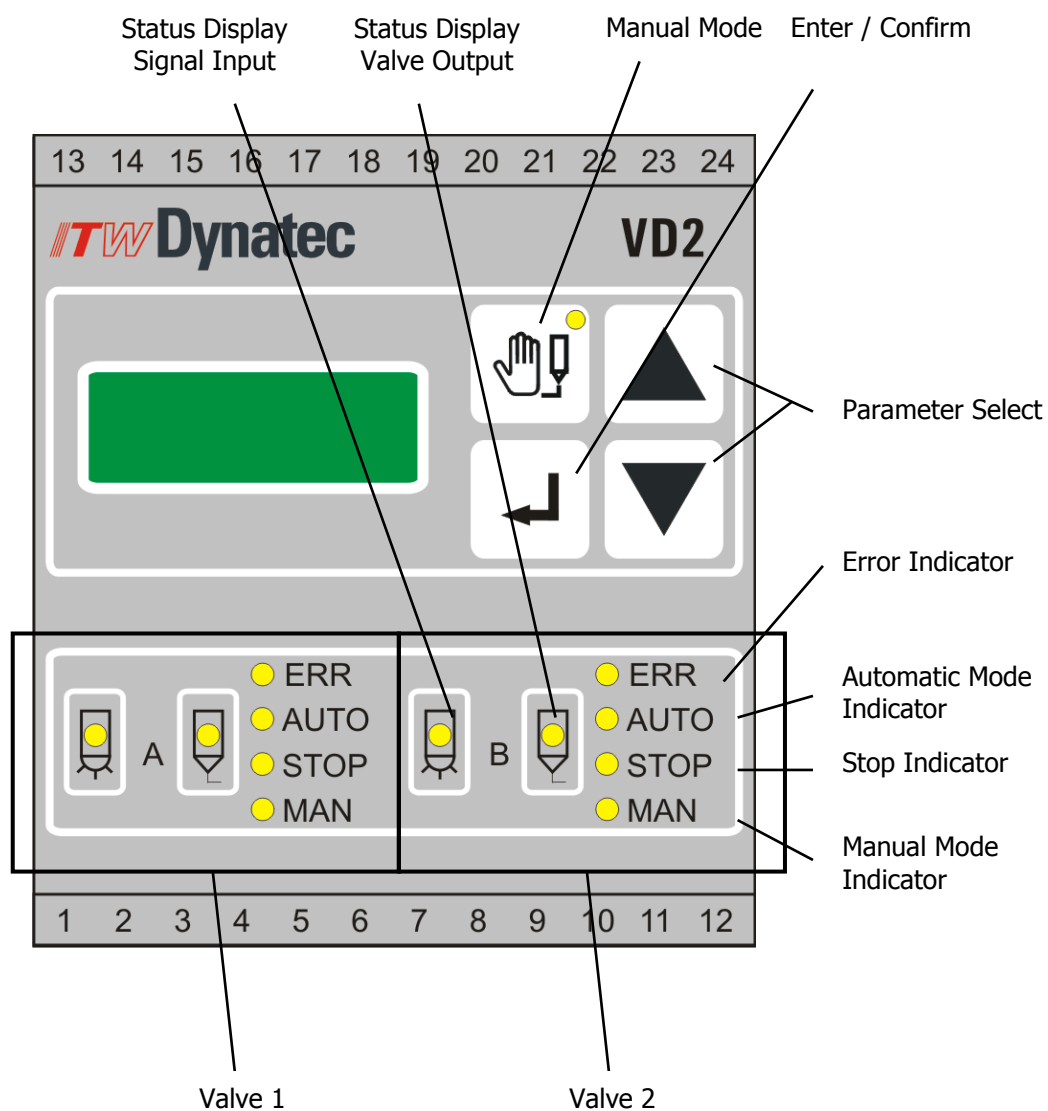
There is also an option to purge the valves manually with a second signal source. To synchronize different valves, a channel dependent adjustable delay and over-excitation is built in.

System Structure

The internal interconnection bus transmits the power supply for the connected modules. Only the first module needs an external power supply.



Overview



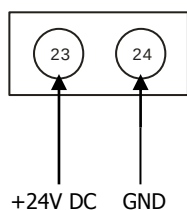
Specifications

Supply voltage	24V DC
Power consumption, system maximum	53 W
Number of channels	2
Signal input intern (Bus)	Potential-free, PNP, NPN
Signal output	Potential-free Relay output
Maximum Valve power	25 W
Over-excitation	0 V or 55V/170 V
Time pattern	0.1 ms
Accuracy	better 0.09 ms

Installation

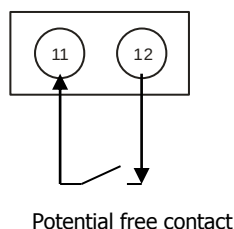
Power Supply

The unit has a common power supply of 24V DC. The system creates independent supplies to feed the internal electronics, the external initiators, contacts, and valve outputs. The power can be taken from an internal bus system connecting different modules or by supplying the voltage via the main connector.



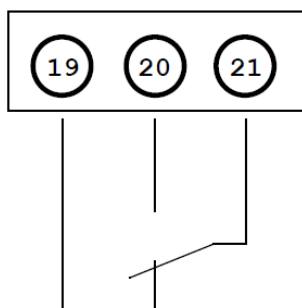
Machine Contact

The unit features a central machine contact. The machine contact brings the unit to a safe stop condition. The level and source of the machine contact (n.o./n.c./remote) is selectable via parameter (see VD2 parameter *MC* on page Parameter Settings VD2-D12).



Ready

The Unit features a ready contact. This contact is a change-over contact. This contact can be used by a customer based system.

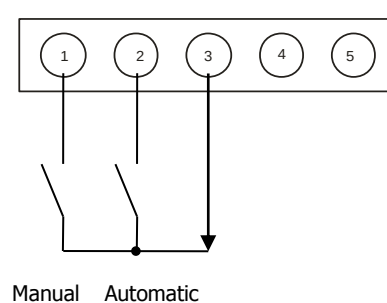
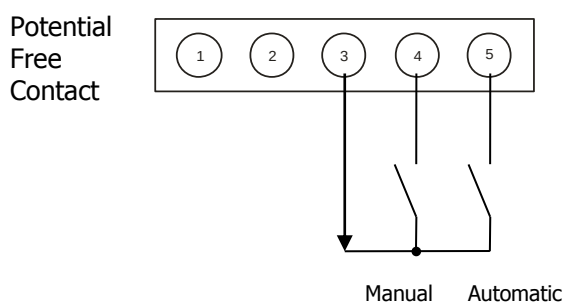
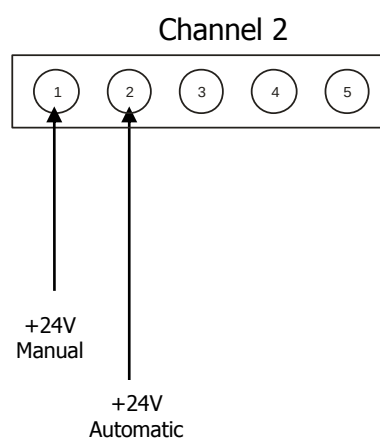
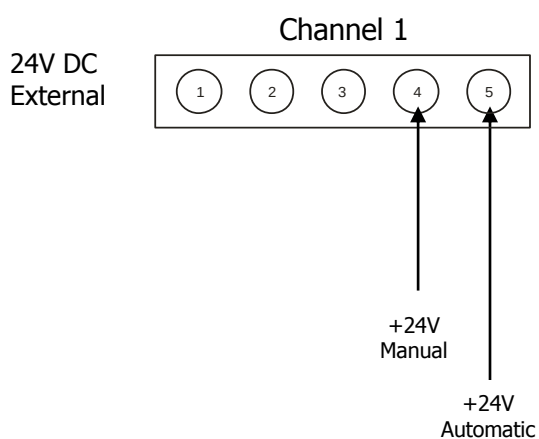


The picture shows the ready condition.

19 is NO
20 is NC
21 is COM (Potential free contact)

Manual Mode / Automatic Mode

The manual and automatic mode can be set by an external 24 V level input or by potential free contacts (see connection schemes below).

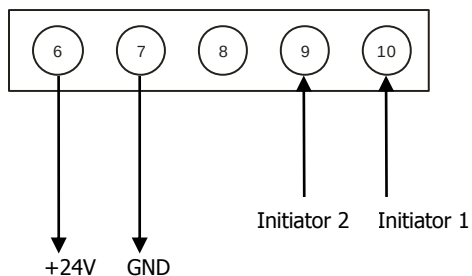


Initiators

Two local initiators can be connected to the VD2 unit.

The levels of both initiators can be set independently via parameters I_{n1} and I_{n2} .

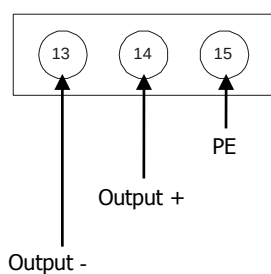
This selection is independent to the channel trigger source of each channel.



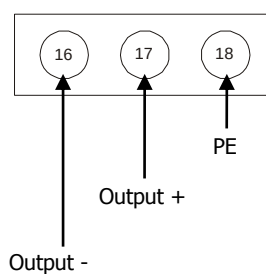
Valve Outputs

The unit is able to drive two separate valves. These are connected as shown below:

Valve 1

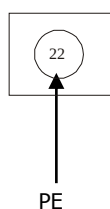


Valve 2



Ground Potential

As the unit operates with voltages over 60 VDC, the system has to be supplied with a ground potential. Use clamp 22 to ground the system.



Display

The display of the unit shows the status, messages and the menu.

Message	Description
<i>E r r n</i>	An error has occurred. (see Error Messages)
<i>r U n</i>	The system is in a run state. No ID has been supplied by the master system (or there is no master attached)
<i>i d n n</i>	The system is in a run state. The ID <i>n n</i> has been supplied by the master system (or an attached PC)
<i>- - - -</i>	The system is in a stop state. The attached master system or PC prevents the system from starting up
<i>b t n n</i>	The system is booting up. The number <i>n n</i> displays the version of the boot code
<i>F . n n n</i>	The attached master or PC is currently updating the firmware unit. Don't switch off power as this might leave the unit in a non functional state
<i>℄ . n n n</i>	The unit is currently checking the system checksum

Functions and Settings

Manual Mode, With External Contact

To use the external manual mode, the external manual contact for the selected channel has to be provided. The valve will open immediately if the input is present.

Manual Valve Mode via Keypad

In addition to the manual mode via external contact the valves can be opened by using the manual keypad mode. To achieve this, change to the manual mode by pressing the key . After this the valve can be selected by using the select keys ▲ and ▼. By pressing the enter button  the selected valve can be opened and closed. The manual keypad mode can be left by pressing the  key.

Factory Reset

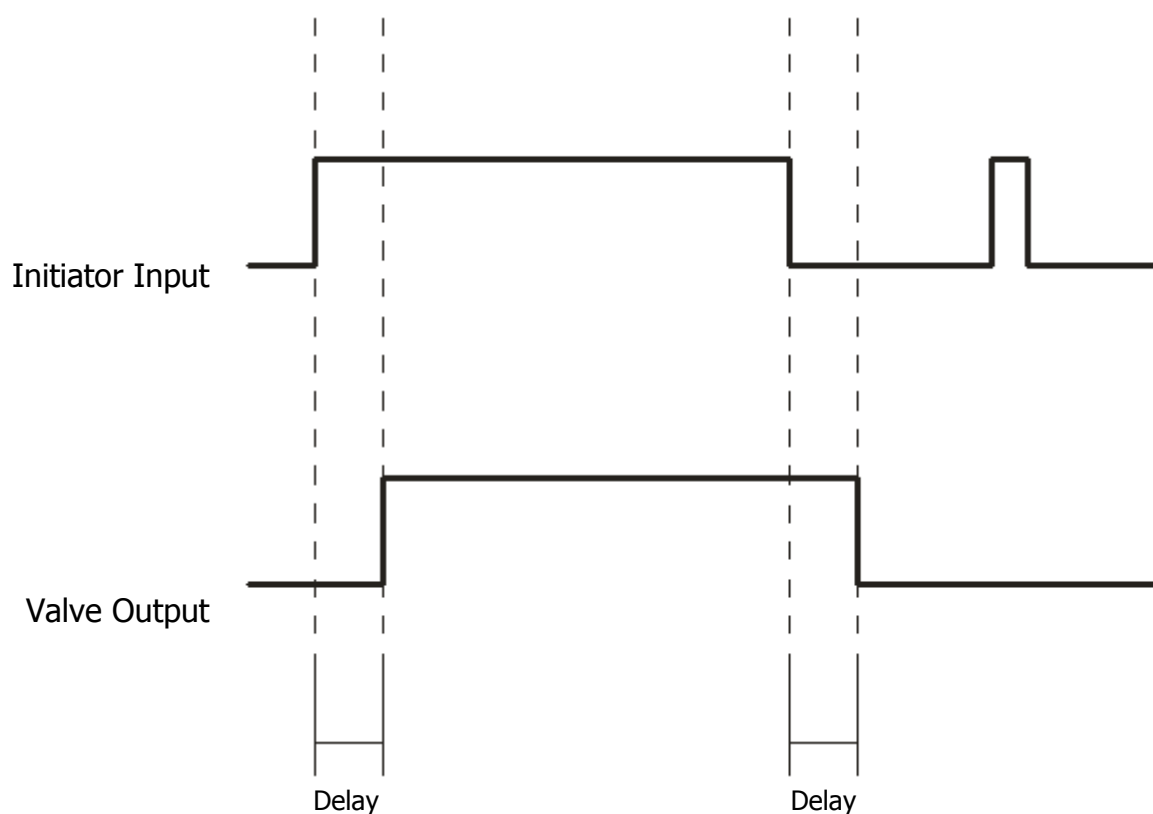
The unit can be reset to factory default values. To achieve this, keep buttons ▲ and ▼ pressed simultaneously during power-on.

Automatic Mode VD2-D

To trigger the valve outputs in automatic mode the following conditions must be met:

1. The machine contact must be triggered
2. The automatic contact for the channels must be present
3. The manual contact for the channel must not be present
4. The unit must not be in the manual mode
5. The initiator must be present

After meeting the above conditions the valve will be opened after an adjustable delay time. After taking off the initiator input the valve will close after the same delay time. See the following diagram:



Parameter Settings VD2-D

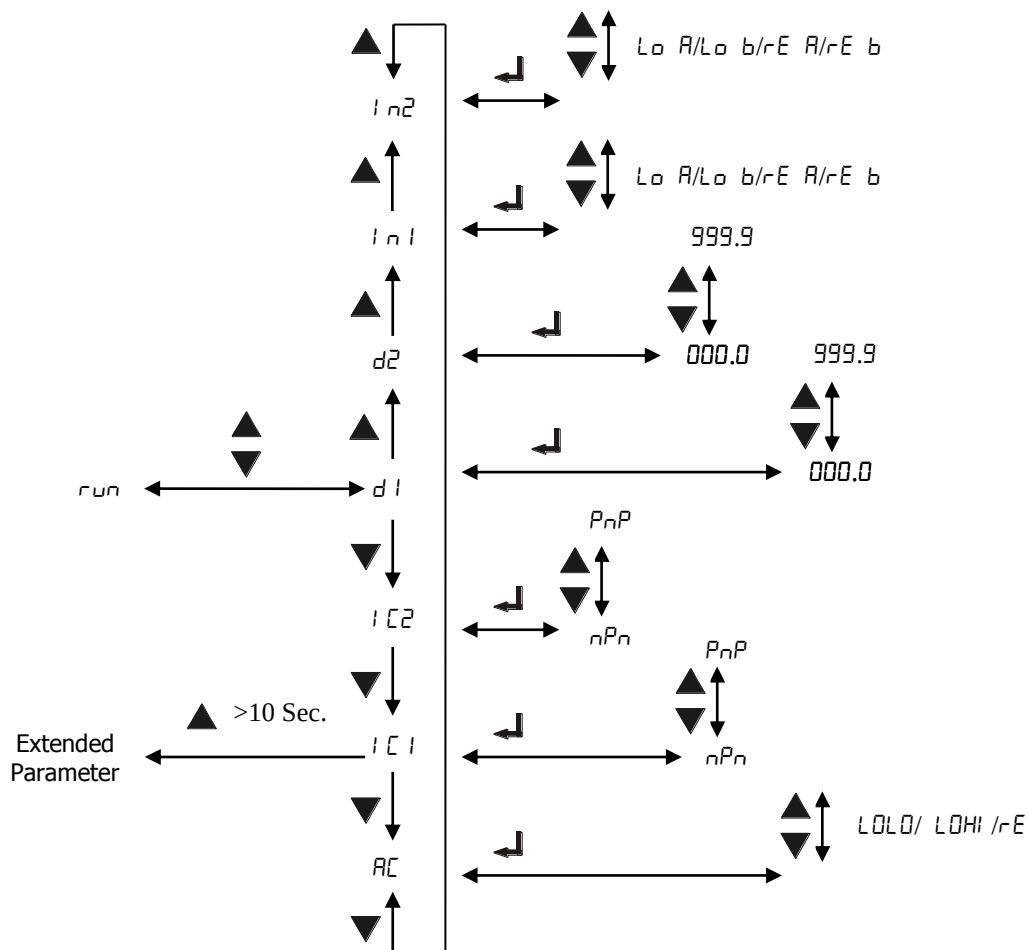
To access the parameter section the keys ▲ and ▼ have to be pressed simultaneously. Inside the parameter menu the above buttons allow scrolling through the different parameters. The following parameters are available:

<i>d1</i>	Delay of valve #1 in ms
<i>d2</i>	Delay of valve #2 in ms
<i>RC</i>	Level of machine contacts (Local low active / Local high active / Remote ¹)
<i>iC1</i>	Level of initiator #1 (NPN / PNP)
<i>iC2</i>	Level of initiator #2 (NPN / PNP)
<i>in1</i>	Source of initiator #1 (local input #1 / local input #2 / Remote1 #1 / Remote1 #2)
<i>in2</i>	Source of initiator #2 (local input #1 / local input #2 / Remote1 #1 / Remote1 #2)

After pressing ↵ the selected parameter can be changed in its valid limits. The submenu can be left by pressing ↵ again.

The whole parameter menu can be left by pressing ▲ and ▼ simultaneously. All settings will be saved.

Parameter Structure VD2-D:



¹ The setting "Remote" requires a master control system. In stand-alone-mode the function is not usable.

Parameter settings VD2

To access the parameter section the keys ▲ and ▼ have to be pressed simultaneously. Inside the parameter menu the above buttons allow scrolling through the different parameters. The following parameters are available:

RC	Level of machine contact (local low active / local high active / Remote ²)
IC1	Level of initiator #1 (NPN / PNP)
IC2	Level of initiator #2 (NPN / PNP)
IN1	Source of initiator #1 (local input #1 / local input #2 / Remote ² #1 / Remote #22)
IN2	Source of initiator #2 (local input #1 / local input #2 / Remote ² #1 / Remote #22)
U1.1	Delay time of channel #1, pattern #1 in ms
n1.1	Glue time of channel #1, pattern #1 in ms
U1.2	Delay time of channel #1, pattern #2 in ms
n1.2	Glue time of channel #1, pattern #2 in ms
U1.3	Delay time of channel #1, pattern #3 in ms
n1.3	Glue time of channel #1, pattern #3 in ms
U1.4	Delay time of channel #1, pattern #4 in ms
n1.4	Glue time of channel #1, pattern #4 in ms
U2.1	Delay time of channel #2, pattern #1 in ms
n2.1	Glue time of channel #2, pattern #1 in ms
U2.2	Delay time of channel #2, pattern #2 in ms
n2.2	Glue time of channel #2, pattern #2 in ms
U2.3	Delay time of channel #2, pattern #3 in ms
n2.3	Glue time of channel #2, pattern #3 in ms
U2.4	Delay time of channel #2, pattern #4 in ms
n2.4	Glue time of channel #2, pattern #4 in ms
S1.n	Stitching ³ channel #1, glue time in ms
S1.u	Stitching channel #1, delay time in ms
S2.n	Stitching channel #2, glue time in ms
S2.u	Stitching channel #2, delay time in ms

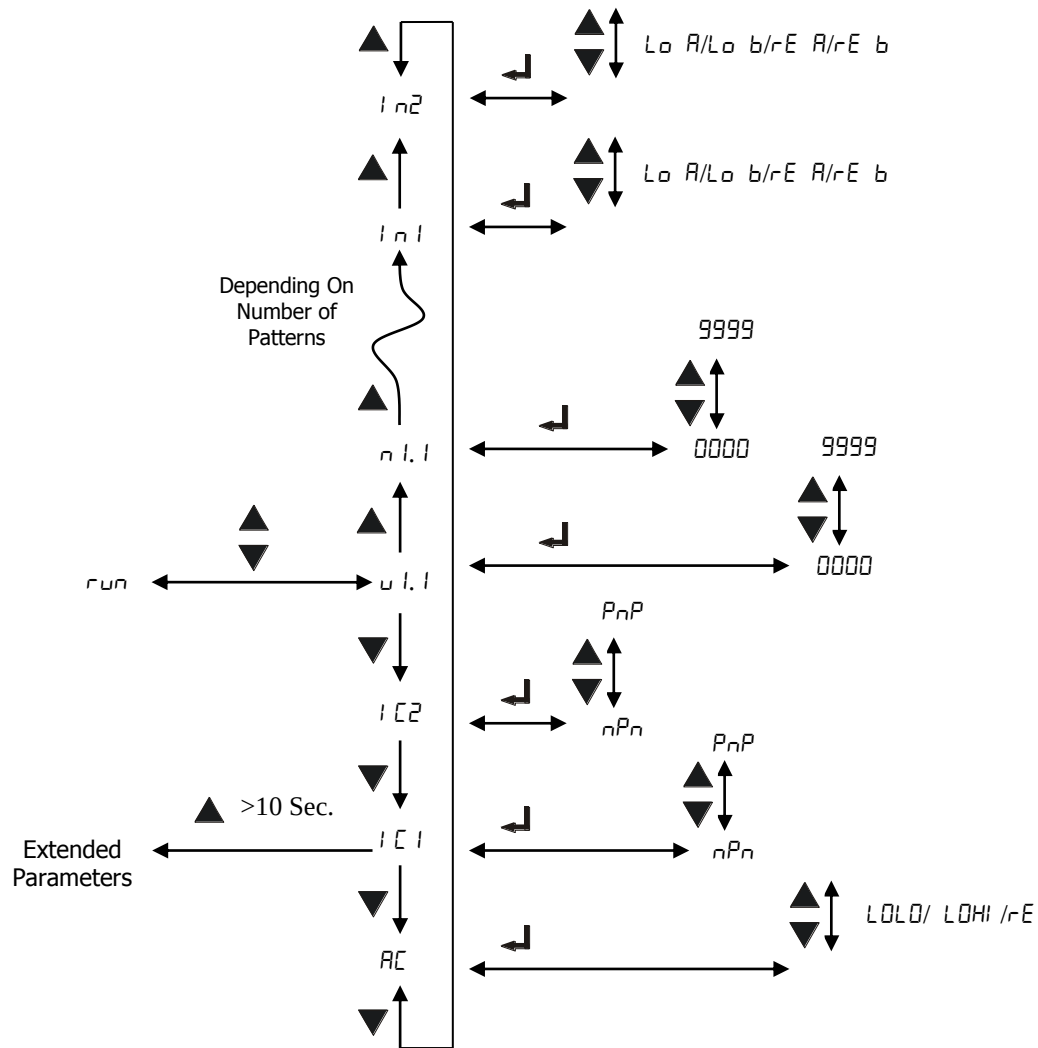
After pressing ↵ the selected parameter can be changed in its valid limits. The submenu can be left by pressing ↵ again.

The whole parameter menu can be left by pressing ▲ and ▼ simultaneously. All settings will be saved.

² The setting "Remote" requires a master control system. In stand-alone-mode the function is not usable.

³ Stitchung is a defined sub-pattern during the ordinary glue time of the pattern (intermittancy) usually used to save glue amount

Parameter Structure VD2:



Parameter Settings VD2-D/VD2, Extended Parameters

Extended Parameters VD2 or VD2-D:

$E1$	Over-excitation of channel #1 (on/off)
$E2$	Over-excitation of channel #2 (on/off)
μOLE	Voltage of over-excitation (55V or 170V)
$OEL1$	Duration of over-excitation for channel #1 in ms (standard: 1.6)
$OEL2$	Duration of over-excitation for channel #2 in ms (standard: 1.6)
$OUEr$	Number of overlapping products (only VD2)
$FunC$	Operating mode of unit (VD2 or VD2-D), read only



Warning!

Only with the agreement of ITW Dynatec or the customer of the used valve change the parameters $E1$, $E2$, $OEL1$ and $OEL2$. Improper change can be damage the connected valves.

Error Messages

VD2 and VD2D display error messages on the integrated display. The messages appear as *Err n* where n is 1-9.

Error	Description
1	Channel 1 is disabled due to an over-current condition
2	Channel 2 is disabled due to an over-current condition
3	Channels 1+2 are disabled due to over-current conditions
4	-
5	-
6	General failure, contact service
7	Default settings had to be loaded (incompatible version of parameters in EEPROM)
8	Default settings had to be loaded (checksum failure of parameters in EEPROM)
9	Checksum failure of program memory (firmware update necessary)

The error messages 7 and 8 have to be acknowledged by pressing ↵.